REMARKS

New dependent claims 55 and 56 depending ultimately from claim 18 have been added. New dependent claims 57 and 58 depending ultimately from claim 48 have been added. A new independent claim 59 has been added. Claims 18 – 24, 30, and 48 – 59 are currently pending in the present application.

In the Office Action, claims 19-20 and 24 are rejected under 35 U.S.C. §102 (b) as being anticipated by Huffington US Patent No. 5,570,520. Moreover, in the Office Action, claims 21-23 and 30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Huffington US Patent No. 5,570,520 in view of Gardner et al US Patent Application No. 2002/0184789. Additionally, in the Office Action, claims 48-53 are rejected under 35 U.S.C. §103(a) as being unpatentable over Huffington US Patent No. 5,570,520 in view of Frye US Patent No. 2,511,839. Furthermore, in the Office Action, claim 54 is rejected under 35 U.S.C. §103(a) as being unpatentable over Huffington US Patent No. 5,570,520 in view of Frye US Patent No. 2,511,839, in further view of Turetta et al US Patent No. 5,228,212.

Favorable reconsideration of the rejections of claims 18 – 24, 30, and 48 – 53 is respectfully requested in view of the following comments.

Initially it is noted that the page of the Office Action entitled "Office Action Summary" indicates, in Box 6 of "Disposition of Claims", that claims 18 – 24, 30, and 48 – 53 is/are rejected. However, attention is drawn to Pages 2 – 6 of the Office Action, wherein no rejection of claim 18 is set forth although all of the claims depending ultimately from claim 18 are rejected – to wit, claims 19, 20, and 24 are rejected under 35 U.S.C. §102(b) as being anticipated by Huffington US Patent No. 5,570,520 and claims 21-23 and 30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Huffington US Patent No. 5,570,520 in view of Gardner et al US Patent Application No. 2002/0184789. In view of the fact that no grounds of rejection of claim 18 appear to be set forth in the Office Action, Applicants expressively traverse any rejection of claim 18 that may be intended by the Office Action and hereby request an opportunity to respond

to any grounds of rejection of claim 18 that may later be set forth. However, as will be clear from the following discussion of the patentability of claims 19 – 24 and 30, it would not be reasonable to reject claim 18 over the prior art of record and a clear indication by the Examiner of the allowance of claim 18 is therefore respectfully solicited.

The Claimed Invention

The present invention as exemplified by, for example, an exemplary embodiment recited in independent claim 48 of the present application, relates to a laundry dryer that includes an electrode for a moisture sensor and a cooler that cools the electrode. Conventional laundry dryers are sometimes provided with electrodes for measuring conductance of a current that has passed through wet laundry and certain ones of these electrodes are exposed to the moist air that obtains within the laundry receiving area of a clothes dryer. Exposed surfaces of such electrodes heat up as a result of voltages applied to the electrodes, whereupon such heated up electrodes may evaporate moist air proximate to such electrodes with the result that deposits and laundry fluid residues previously entrained in the moist air disentrain from the moist air and build up a film on the electrodes. The conventional approach to addressing this film has been to frequently clean the electrodes. However, these electrodes are difficult and expensive to clean. The present invention thus provides a solution for preventing or at least minimizing the build up of film on the electrodes.

Huffington '520 discloses a clothes dryer detection circuit comprising a microcontroller 10 in operative communication with a first non self-heating thermistor 12 and a second self-heating thermistor 14. The thermistors 12, 14 are set in the exit air ducts or outlets of a clothes dryer. The actual operation of the control circuit 10 is essentially a voltage divider circuit which measures the voltage drop across the thermistors as an analog signal and converts it to a digital signal for conventional digital signal processing. As the exit air cools the self-heating thermistor due to a high relative humidity content, the resistance of the thermistor will increase so that the voltage drop

across a thermistor 14 will be greater than when the thermistor is operating at a higher temperature.

Gardner et al discloses the use of a moisture sensor 230 that updates a drying schedule 215 as the moisture level passes through each drying level [0031].

Frye '839 discloses a batch-type drying apparatus for drying laundry that includes a casing 1 having therein a drum 13 and electrodes 54 and 55. The electrodes 54 and 55 together constitute a high frequency electric current applying arrangement that applies a high frequency electrostatic field to clothes or other textile materials being retained in the non-conductive drum 13. This high frequency electrostatic field heats the clothes or other textile materials to a temperature above a flash point of a solvent or other composition that may be present or alternatively heats the clothes or other textile materials while a relatively cool air is introduced to prevent the solvent or other composition from forming an explosive mixture.

Turetta et al US Patent No. 5,228,212 discloses a clothes dryer 1 having a cabinet 2 with an aperture 3, to coincide with which there is positioned a door 4 provided with usual seal gaskets 5 and in which a filter element 24A is disposed. The aperture 3 provides access to a usual drum 6 through which hot air circulation is generated to dry the clothes. Means are provided to produce this circulation and heating, said means being (in the example shown in FIG. 1 and in FIGS. 2 to 5) a fan 7, a resistance element 8, a heat exchanger 9 and relative ducts 10A for feeding dry hot air C into the drum 6, 10B for removing the wet hot air U therefrom (provided partly within the door 4) and 10C for feeding cold air F to said fan 7. This air F originates from the heat exchanger 9 which in the example is of the countercurrent type. Cold air E originating from the outside of the cabinet 2 passes through it by being fed through a duct 12 by a second fan 13. The duct 12 opens again to the outside of the cabinet 2 via an aperture from which hot air G emerges. The water H contained in the moist hot air U condenses as this latter passes through the heat exchanger 9 and falls into a first collection vessel 15. This is connected via a pipe 16 to a pump 17 from which a further pipe 18 extends to terminate in a second collection vessel 19. Turetta et al US Patent No. 5,228,212 also discloses, as shown in

Figure 5 thereof, that a circuit for producing hot air may be formed of a usual refrigeration circuit comprising substantially a compressor 70, a condenser 71 and an evaporator 72, the compressor 70 being connected to a power feed line 73 which includes a contactor 74 normally closed during machine operation.

The Huffington '520 Reference

It is respectfully submitted that claims 19-20 and 24, which are rejected under 35 U.S.C. §102(b) as being anticipated by Huffington US Patent No. 5,570,520, are patentable over Huffington '520 for the reason that Huffington '520 neither discloses nor teaches the device for determining the conductance of laundry in a laundry drier as recited in these claims. Huffington '520 discloses a system for detecting dryness in exit air exiting from a clothes dryer. Huffington '520 does not even suggest or hint at a system for determining the conductance of laundry in a laundry drier and, in fact, Huffington '520 expressly discloses that its system for detecting dryness in exit air exiting from a clothes dryer is a "third" system that is different from two known types of systems one of which involves, as does the present invention, determining the conductance of laundry in a laundry drier. Specifically, Huffington '520 notes in Column 1 that one type of detection circuit for clothes dryers employs contact electrical tracings in the dryer drum that are generated by the contact of wet clothes (i.e., laundry) with opposed traces to thereby complete a closed circuit connection. Thus, in view of the fact that Huffington '520 specifically points out the alleged merits of its "third" type of system over the other two types of systems, it cannot follow that one of ordinary skill in the art, in considering a possible solution for the undesired measurement drift resulting from a film build up over time on electrodes of a system for determining the conductance of laundry in a laundry drier, would refer to Huffington '520 for its "third" type of system and, then, instead of adopting such a "third" type of system as recommended by Huffington '520, would nonetheless continue with one of the two known systems that, according to Huffington '520, is a flawed system.

Thus, it is clear that Huffington '520 would not hint at or suggest to one of ordinary skill in the art to further refine one of the two known systems (in lieu of adopting such a "third" type of system as recommended by Huffington '520) and so it cannot be seen that Huffington '520 would lead one of ordinary skill in the art to consider modifying a system for detecting dryness in exit air exiting from a clothes dryer to improve the performance of the completely different approach of determining the conductance of wet laundry in a laundry drier. In fact, far from raising a concern about the deleterious effects of moist-air contact with electrodes, Huffington '520 expressly relies upon solid contact of the increased moisture content of the exit air on the self-heating thermistor 14 to contribute to the heating up of the thermistor 14 so as to produce a reliably distinct contrast between the temperature plot of the sensed temperature of the self-heating thermistor 14 as it senses exit air with a lot of moisture and the lower constant temperature level of the non self-heating thermistor 12. Huffington '520 makes no hint that a means for reducing heat on either of its thermistors 12, 14 would be desirable and, beyond the absence of such a hint, any action operating to reduce a heating up of the self-heating thermistor 14 would apparently have to be countered with a counter-action to in fact ensure that the self-heating thermistor 14 heats up as required to reliably bring about a distinct temperature contrast.

The Huffington '520 Reference in View of the Gardner et al Reference

With regard to the rejection of claims 21-23 and 30 under 35 U.S.C. §103(a) as being unpatentable over Huffington US Patent No. 5,570,520 in view of Gardner et al US Patent Application No. 2002/0184789, it is clear that Gardner et al does not teach or suggest any means for heat reduction at all, let alone a means for heat reduction from an electrode as recited in these rejected claims. The Office Action refers to paragraph [0039] in an attempt to support the rejection. However, contrary to the allegation, paragraph [0039] of the Gardner et al. reference merely describes a cooldown sequence of a wrinkle-free cycle of a laundry dryer. Paragraph [0039] of the Gardner et al. reference does not teach or suggest any means for heat reduction at all, let alone a means for heat reduction from an electrode. Accordingly, in light of the fact that Huffington

'520 itself would not provide a suggestion to one of ordinary skill in the art to further refine one of the two known systems (in lieu of adopting such a "third" type of system as recommended by Huffington '520), no reason can be seen that one of ordinary skill in the art would turn to Huffington '520 in seeking a solution to the problem addressed by the present invention - namely, a solution for preventing the build up of film on electrodes.

Thus, it is submitted that claims 19 – 23 and 30 of the present application are neither disclosed nor taught by Huffington '520 or Gardner et al, either singly or in combination, and the rejections of these claims should be withdrawn.

The Huffington '520 Reference in View of the Frye '839 Reference

The Office Action rejects independent claim 48 and claims 49 - 53 depending ultimately therefrom under 35 U.S.C. §103(a) as being unpatentable over Huffington '520 in view of Frye '839. Applicants respectfully traverse this rejection.

Independent claim 48 of the present application recites a laundry dryer, having an electrode of a moisture sensor and a cooler that cools the electrode.
According to the Office Action, Huffington '520 discloses the claimed invention except for the claimed cooler that cools the electrode, openings, and pipes air flow. However, according to the Office Action, Frye '839 discloses "another device for laundry electrodes in a dryer" and discloses the electrode, openings, and pipes air flow. Furthermore, according to the Office Action, it would have been obvious to one skilled in the art to combine the teachings of Huffington '520 with the electrode, openings, and pipes air flow disclosed by Frye '839 for the purpose of allowing an alternative efficient electrode cooling mode to keep optimum drying conditions.

Before turning to an explanation of the improper combination of Huffington '520 and Frye '839, it is pointed out that Frye '839 does not, in fact, disclose "another device for laundry electrodes in a dryer" in the sense of a device for a dryer operable to measure a conductance through wet laundry. Instead, Frye '839 discloses that its electrodes 54 and 55 are operated not at all for any measurement purpose but are operated for the purpose of actually generating the heat required to dry the wet laundry. See, for example,

Col. 4, line 74, to Col. 5, line 3, of Frye '839: "The textile materials are subjected to the high frequency electrostatic field setup within the compass of the drum 13 between the electrodes 54 and 55, and are heated thereby as they are tumbled by the lifting means 15;" and Col. 2, lines 32 – 36, of Frye '839: "Thus, textile fabrics containing sufficient moisture, such as laundry, for example only, may be dried by either the electrostatic or the electromagnetic high frequency field."

With regard to the improper combination of Huffington '520 and Frye '839, it has already been noted that Huffington '520 is not at all directed to a system for determining the conductance of wet laundry in a laundry drier but, rather, is directed to a system for detecting dryness in exit air exiting from a clothes dryer and, consequently, Huffington '520 does not purport to provide a solution for preventing or at least minimizing the build up of film on the electrodes of a system for determining the conductance of wet laundry in a laundry drier. So Huffington '520 would clearly not be a springboard for one of skill in the art to start a search for a solution for preventing the build up of film on electrodes. However, even if it is assumed that Huffington '520 would be such a springboard toward the solutions sought by the present invention, it is not at all apparent how one of skill in the art would seek out Frye '839. As noted, the electrodes 54 and 55 of Frye '839 are operated not at all for any measurement purpose but are operated for the purpose of actually generating the heat required to dry the wet laundry. Beyond that, Frye '839 does not appear to suggest or propose a system for determining the conductance of wet laundry. Clearly, as well, Frye '839 cannot be regarded as a springboard for one of skill in the art to start a search for a solution for preventing the build up of film on electrodes, in view of the complete absence of any discussion in Frye '839 of a system for measuring a moisture content of laundry in a laundry drier, let alone any discussion of a system for determining the conductance of wet laundry.

Even assuming, then, that one of skill in the art would be led by either Huffington '520 or Frye '839 to selectively incorporate features of one with features of the other, which guidance Applicants submit does not exist, none of Huffington '520, Frye '839, or any other prior art of record provide any hint or suggestion for one of skill in the art to

combine Huffington '520 and Frye '839 in the manner set forth in the Office Action. Huffington '520 does not indicate the desirability of providing a cooler for its system and, in fact, as noted above, providing heat abatement on at least its thermistor 14 would appear to impair the optimum operation of the Huffington '520 system. Turning to the "cooler" of Frye '839, the electrodes 54 and 55 are cooled by a portion of the air circulating through the casing 1, with such air being provided from a blower 43 via a duct 40. It is simply not at all apparent how this air circulating system of Frye '839 should be, or could be, grafted onto the exit air environment of Huffington '520. Moreover, even in the event that the air circulating system of Frye '839 could be grafted onto the exit air environment of Huffington '520, the Office Action provides no reason as to why one of skill in the art would want to attempt such a modification, especially in light of the lack of any need for cooling in the Huffington '520 system.

Thus, it is submitted that claims 48 -53 of the present application are neither disclosed or taught by Huffington '520 or Frye '839, either singly or in combination. Also, it is submitted claim 54, which is rejected under 35 U.S.C. §103(a) as being unpatentable over Huffington '520 in view of Frye '839 and further in view of Turetta et al US Patent No. 5,228,212, is allowable for at least the same reasons that claims 48 – 53 are allowable, in that Turetta et al US Patent No. 5,228,212 does not remedy any of the deficiencies of Huffington '520 or Frye '839 individually or the deficiencies of the improper combination of Huffington '520 and Frye '839. Applicants respectfully request withdrawal of these rejections of claims 48 – 54.

New Claims 55 - 59

It is additionally submitted that new claims 55 – 59 patentably define over the prior art of record and should be allowed. For example, claim 59 recites a laundry dryer including a laundry receiving area in which laundry to be dried is retained and a device for determining the conductance of laundry in the laundry receiving area. Laundry in the laundry retaining area is subjected to a drying operation whereby moisture initially retained by the laundry is released into surrounding air as the laundry is dried and the

surrounding air increases in its moisture content. According to new independent claim 59, the device for determining the conductance of laundry in the laundry receiving area includes a first electrode and an exposed side arrangement, the exposed side arrangement including a second electrode. The second electrode has an exposed side that is exposed to the laundry receiving area to an extent that the second electrode is contacted by a moist air mixture in the laundry receiving area. Additionally, according to new independent claim 59, the device is operable to apply a voltage to the first electrode and the second electrode of the exposed side arrangement that results in a current passing through laundry retained in the laundry receiving area, thereby permitting a voltage measurement proportional to a moisture content of the laundry and the device applies a voltage in a manner such that the exposed side of the second electrode of the exposed side arrangement can reach an evaporation enabling temperature sufficient to evaporate liquid in the air mixture in contact with the exposed side in the absence of a heat abatement measure. Furthermore, as recited in new independent claim 59, the exposed side arrangement operates to substantially prevent the exposed side of the second electrode from reaching the evaporation enabling temperature in spite of the application by the device of a voltage that would otherwise cause the exposed side of the second electrode to reach the evaporation enabling temperature.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of claims 18 – 24, 30, and 48 – 59 are respectfully requested. If the Examiner has any questions regarding this Amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

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